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EXAMINER	
HOANG, HIEU T	

ART UNIT	PAPER NUMBER
2452	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/652,330	ELZUR ET AL.	
	Examiner	Art Unit	
	HIEU HOANG	2452	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *20 September 2010*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *18-21,25 and 33-41* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *18-21, 25, 33-41* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. This office action is in response to the communication filed on 09/20/2010.

2. Claims 18-21, 25, 33-41 are pending.

Response to Arguments

3. Applicant arguments have been fully considered but are unpersuasive.

4. Regarding arguments involving "a single Ethernet connector for handling a plurality of different types of network traffics", examiner submits to maintain that the prior arts of record do teach/render obvious the limitation. First, examiner reemphasizes that Philbrick does teach a network interface card with 4 Ethernet connectors each supporting a different conduit such as twisted pair, coaxial cable or optical cable (par. [0106]) and each of these connectors can handle a plurality types of traffic (fig. 16, one of the Ethernet connectors for receiving multiple traffic types, [0065], SCSI and TCP, or Etherstorage or SEP and TCP, [0069] lines 20-23, different storage protocols over TCP/IP, [0084], [0085], NAS traffic and network storage traffic over network line 644, utilizing iSCSI and TCP/NetBios/SMB, [0085], iSCSI and TCP/NetBios/SMB, fig. 15, [0093], [0097], [0099], NAS, RTP/RTCP and SIP and MGCP). Reducing 4 connectors to one single connector that handles a plurality traffic types is just an obvious elimination of an element and its function (see MPEP 2144.04 II). Second, Hayes does disclose a NIC with a single connector (fig. 5, [0026], single PHY interface connected to the network, [0018], [0020], NIC handling both offload protocol traffics and regular traffics). It would have been obvious for one skilled in the art at the time of the invention to

reduce the number of Ethernet interfaces of Philbrick to a single physical interface taught by Hayes. The motivation would be to implement one single interface or connector for the case of one conduit running a plurality of traffics, and also reduce the making cost of the NIC by reducing support for other conduits.

5. Regarding arguments involving "a plurality of different types of network traffics", examiner submits to maintain that the prior arts of record do teach/render obvious the limitation. Any two different traffics can be read as "different types of network traffics", such as traffics of different protocols. Therefore, examiner submits to maintain that both Philbrick and Hayes do teach "a plurality of different types of network traffics" (Philbrick, fig. 16, one of the Ethernet connectors for receiving multiple traffic types, [0065], SCSI and TCP, or Etherstorage or SEP and TCP, [0069] lines 20-23, different storage protocols over TCP/IP, [0084], [0085], NAS traffic and network storage traffic over network line 644, utilizing iSCSI and TCP/NetBios/SMB, [0085], iSCSI and TCP/NetBios/SMB, fig. 15, [0093], [0097], [0099], NAS, RTP/RTCP and SIP and MGCP; Hayes, [0018], [0020], NIC handling both offload protocol traffics and regular traffics)

6. Regarding arguments involving concurrent handling a plurality of traffic types, the claims recite a single connector for receiving a plurality of traffic types. Given that traffics of different traffic types arrive at the single connector as packets, the different traffic types will then be distinguished and processed as to which protocol it belongs to (as in fig. 9 of the specification), it is understood that one packet of a traffic, say type A, arrives at a different time than another packet of another traffic, say type B. Therefore,

concurrent accessing/processing a plurality types of traffic from the specification means accessing/processing traffics together via one connector and not at the same time (which is vague how that could be implemented given there is only one connector for receiving packets one at time). In that sense, the prior art does teach distinguishing and processing between different traffic types via one connector as recited in the office action. Applicant emphasizes on the word “or” in [0085] of Philbrick (page 20 of the Remarks) and alleges that Philbrick only teaches handling traffic types one at a time. The recited section of Philbrick means that two different traffic types can be processed together via one connector using a CCB block for distinguishing each type of traffic via one fabric and connector (see fig. 14, one line 644 from one connector to both storage units using different protocols). Therefore, it is maintained that Philbrick does teach the limitation.

7. Regarding arguments involving a TCP processor, an iSCSI processor and a RDMA processor, examiner maintains that the prior arts do teach/render obvious the limitation. The claims do not recite what functionalities the processors exhibits; therefore, the various processors can be broadly read as names given to any software and/or hardware modules as in the office action.

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

9. Claims 18, 20, 21, and 36-41 are rejected under 35 U.S.C. 103(a) as being unpatentable over Philbrick et al. (US 2001/0037406, hereafter Philbrick), in view of Haviv (US 2002/0059451) and Hayes (US 2003/0046330)

10. For claim 18, Philbrick discloses a server, comprising:

- a single integrated convergence network controller chip (fig. 6, fig. 1, network interface card INIC 22);
- a Ethernet connector for handling a plurality of different types of network traffic (fig. 16, one of the Ethernet connectors for receiving multiple traffic types, [0065], SCSI and TCP, or Etherstorage or SEP and TCP, [0069] lines 20-23, different storage protocols over TCP/IP, [0084], [0085], NAS traffic and network storage traffic over network line 644, utilizing iSCSI and TCP/NetBios/SMB, [0085], iSCSI and TCP/NetBios/SMB, fig. 15, [0093], [0097], [0099], NAS, RTP/RTCP and SIP and MGCP)**),**
- the single connector is coupled to the single integrated convergent network controller chip ([0066] lines 12-15, Ethernet connector 424 coupled to the INIC),

- the single integrated convergence network controller chip is operable to concurrently process the plurality of different types of traffic ([0065] lines 15-21, at least two traffics SCSI and TCP/IP, fig. 14, [0084], [0085], NAS traffic and network storage traffic over network line 644, utilizing iSCSI and TCP/NetBios/SMB, [0085], iSCSI and TCP/NetBios/SMB, fig. 15, [0093], [0097], [0099], NAS, RTP/RTCP and SIP and MGCP)).

Philbrick does not explicitly disclose different types of network traffic transported via a single fabric for the plurality of servers; the single fabric is coupled to a plurality of servers.

However, Haviv discloses different types of network traffic transported via a single fabric for the plurality of servers; the single fabric is coupled to a plurality of servers (fig. 5, [0014], [0019], [0022], [0044], servers 54 and a single fabric connecting to servers for transporting different traffic types, RDMA over TCP/IP, SAN, SCSI RDMA, socket direct protocol… for the servers)

It would have been obvious for one skilled in the art at the time of the invention to combine the teachings of Philbrick and Haviv to utilize a single chip for processing multiple traffic types for a plurality of servers via a single fabric in order to reduce usage of hardware and/or network resources and costs.

Philbrick discloses a network interface card (NIC) with 4 different Ethernet connectors for the purpose of serving 4 different conduits (fig. 16 and [0066], [0067] and [0106]). Philbrick-Haviv does not disclose a network interface card with a single Ethernet connector.

However, Hayes discloses a NIC with a single connector (fig. 5, [0026], single PHY interface connected to the network, [0018], [0020], NIC handling both offload protocol traffics and regular traffics)

It would have been obvious for one skilled in the art at the time of the invention to reduce the number of interfaces in Philbrick to a single physical interface taught by Hayes. The motivation would be to implement one single interface or connector for the case of one conduit running a plurality of traffics, and also reduce the making cost of the NIC by reducing support for other conduits.

11. For claim 20, Philbrick-Haviv-Hayes further discloses the blade server has a single Internet protocol (IP) address (Philbrick, [0053] IP address).

12. For claim 21, Philbrick-Haviv-Hayes further discloses the plurality of servers is part of a data center (Philbrick, fig. 14, storage center), and the data center comprises a plurality of other servers coupled to each other via the single fabric (Haviv, fig. 5).

13. For claim 25, Philbrick-Haviv-Hayes further discloses the plurality of different types of traffic comprises at least two of network traffic, storage traffic, interprocess communication (IPC) traffic and cluster traffic (Philbrick, [0065] lines 15-21, network traffic TCP/IP and storage traffic SCSI, Haviv, [0019]).

14. For claim 36, Philbrick discloses a system for communication, the system comprising: a single integrated convergent network controller chip that enables concurrent hardware, firmware and software processing functionalities of a plurality of different types of traffic that are received via a layer 2 (L2) connector (fig. 6, [0065] lines 15-21, a single integrated network controller INIC 400 with an L2 SAN connector for at least two traffics (SCSI and TCP/IP traffics), fig. 14, [0084], [0085], NAS traffic and network storage traffic over network line 644, utilizing iSCSI and TCP/NetBios/SMB, [0085], iSCSI and TCP/NetBios/SMB, fig. 15, [0093], [0097], [0099], fast path audio and video traffics and real time voice/video traffics and NAS, RTP/RTCP and SIP and MGCP, fig. 13, protocol processing using the INIC is hardware and driver—software/firmware)

Philbrick does not explicitly disclose the connector is communicatively coupled to a plurality of servers via a single fabric.

However, Haviv discloses transporting different types of network traffic transported via a single fabric for the plurality of servers (fig. 5, [0014], [0019], [0022], [0044], servers 54 and a single fabric connecting to servers for transporting different traffic types, RDMA over TCP/IP, SAN, SCSI RDMA, socket direct protocol… for the servers)

It would have been obvious for one skilled in the art at the time of the invention to combine the teachings of Philbrick and Haviv to utilize a single chip for processing multiple traffic types for a plurality of servers via a single fabric in order to reduce usage of hardware and/or network resources and costs.

Philbrick discloses a network interface card (NIC) with 4 different connectors for the purpose of serving 4 different conduits (fig. 16 and [0066], [0067] and [0106]). Philbrick-Haviv does not disclose a network interface card with a single Ethernet connector.

However, Hayes discloses a NIC with a single connector (fig. 5, [0026], single PHY interface connected to the network, [0018], [0020], NIC handling both offload protocol traffics and regular traffics)

It would have been obvious for one skilled in the art at the time of the invention to reduce the number of interfaces in Philbrick and Haviv to a single physical interface taught by Hayes. The motivation would be to implement one single interface or connector for the case of one conduit running a plurality of traffics, and also reduce the making cost of the NIC by reducing support for other conduits.

15. For claim 37, Philbrick-Haviv-Hayes discloses said single integrated convergent network controller chip comprises a layer 2 network interface card (L2 NIC) (Philbrick, [0065] lines 7-11, Ethernet, fig. 24, MAC controller), a transmission control protocol (TCP) processor, an iSCSI processor ([0065] lines 15-21, iSCSI processing over TCP/IP) and a remote direct memory access (RDMA) processor (fig. 25, DMA controller), and a Management Agent processor ([0106], last sentence).

16. For claim 38, Philbrick-Haviv-Hayes discloses said plurality of different types of network traffic comprises at least two of a network traffic, storage traffic, interprocess

communication (IPC) traffic and cluster traffic (Philbrick, fig. 6, [0065] lines 15-21, a single L2 SAN connector in an INIC (integrated circuit) for both storage SCSI traffic and network TCP/IP traffic).

17. For claims 39-41, the claims are rejected for the same rationale as in claims 36-38 respectively.

18. Claims 33-35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Philbrick, and further in view of Microsoft (03/03/2001, Winsock Direct and Protocol Offload on SANs), and in view of Hayes.

19. For claim 33, Philbrick discloses a method for communication, the method comprising:

in a data center, accessing a storage system over a single fabric, wherein said single fabric comprises a layer 2 (L2) connector coupled to a single integrated convergent network controller chip that is enabled to concurrently process a plurality of different types of traffic (fig. 6, L2 connector coupled to the INIC-- integrated convergent network controller chip, [0065] lines 15-21, L2 connector for network traffic TCP/IP and storage traffic SCSI, fig. 14, [0084], [0085], NAS traffic and network storage traffic over network line 644, utilizing iSCSI and TCP/NetBios/SMB, [0085], iSCSI and TCP/NetBios/SMB, fig. 15, [0093], [0097], [0099], fast path audio and video traffics and real time voice/video traffics and NAS, RTP/RTCP and SIP and MGCP); and

accessing a network over the single fabric ([0065] lines 15-21, network traffic TCP/IP and storage traffic SCSI).

Philbrick does not explicitly disclose accessing a cluster over the single fabric.

However, Microsoft discloses accessing a cluster over the single fabric (fig. 2, page 5 lines 7-8, RDMA support for clustering traffic, RDMA running over TCP/IP).

Therefore, it would have been obvious for one skilled in the art at the time of the invention to combine the teachings of Philbrick and Microsoft to further provide more functions such as RDMA support on an iSCSI-enabled NIC of Philbrick.

Philbrick discloses a network interface card (NIC) with 4 different connectors for the purpose of serving 4 different conduits (fig. 16 and [0066], [0067] and [0106]). Philbrick-Haviv does not disclose a network interface card with a single Ethernet connector.

However, Hayes discloses a NIC with a single connector (fig. 5, [0026], single PHY interface connected to the network, [0018], [0020], NIC handling both offload protocol traffics and regular traffics)

It would have been obvious for one skilled in the art at the time of the invention to reduce the number of interfaces in Philbrick and Haviv to a single physical interface taught by Hayes. The motivation would be to implement one single interface or connector for the case of one conduit running a plurality of traffics, and also reduce the making cost of the NIC by reducing support for other conduits.

20. For claim 34, Philbrick-Microsoft-Hayes further discloses said accessing of said storage system over said single fabric are performed over a single connector of a server in the data center (Philbrick, fig. 6, single connector 424).

21. For claim 35, Philbrick-Microsoft-Hayes further discloses said single integrated convergent network controller chip coupled to the single Ethernet connector has a single Internet protocol (IP) address (Philbrick, [0053] IP address).

22. Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Philbrick-Haviv-Hayes, in view of what was known in the art.

23. For claim 19, Philbrick-Haviv-Hayes does not explicitly disclose the server comprises a blade server, and wherein the integrated chip is part of a blade mounted in the blade server.

However, Official notice is taken that it was well known in the art that a blade server comprises a plurality of servers, and the single integrated convergent network controller chip is part of a blade mounted in the blade server.

Therefore, it would have been obvious for one skilled in the art at the time of the invention to apply Philbrick-Haviv-Hayes to a blade server system to make use of advantages of a blade server system such as high space density.

Conclusion

24. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hieu T. Hoang whose telephone number is 571-270-1253. The examiner can normally be reached on Monday-Thursday, 8 a.m.-5 p.m., EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thu Nguyen can be reached on 571-272-6967. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/HH/

Examiner, AU 2452

/Patrice L Winder/

Primary Examiner, Art Unit 2452